Amendments to the Claims:

This listing of claims will replace all prior versions and listing of claims in the application.

Claims 2-50 are canceled without prejudice or disclaimer.

Claims 51-102 are new.

Listing of Claims:

1. (Original) A method for estimating the fibre fineness of a known mass of fibres, the method including the steps of:

a) capturing with an image capturing device either i) all of the fibres being tested in one or more images or ii) a fraction of the fibres being tested in one or more images;

b) determining the total length of the fibre or fibres in the or each image using automated computer image analysis; and

c) estimating the fibre fineness of the sample of fibres using the total fibre length in the image(s).

51. (New) The method according to claim 1, wherein the method includes estimating the mass of fibre in the image(s) captured.

52. (New) The method according to claim 51, wherein step c) involves dividing the mass of fibre estimation by the length of fibre determined in step b).

53. (New) The method according to claim 51 whereby when step a) involves capturing a series of images that overlap, step b) involves taking into account the length of fibre in an overlapping section of the images to avoid over estimating the total length of fibre.

54. (New) The method according to claim 51, wherein the image capturing device is a digital camera.

55. (New) The method according to claim 51, wherein the sample of fibres is dispersed on a viewing platform and relative movement between the viewing platform and the image capturing device enables a series of images to be captured.

56. (New) The method according to claim 51, wherein the fibres captured in the images are suspended in a fluid to form a suspension of known volume.

57. (New) The method according to claim 56, wherein the method includes forming the suspension by mixing the fibres in a fluid.

58. (new) The method according to claim 57, wherein estimating the mass of fibre in the image(s) is based on the volume of fluid in the field of view of the image capturing device compared to the total volume of the fluid in which the fibres are suspended.

59. (New) The method according to claim 56, wherein the method includes conveying the suspension past the image capturing device such that one or more images of the fibres in the suspension can be captured.

60. (New) The method according to claim 59, wherein the suspension is contained in a closed loop that extends past the image capturing device so that the suspension can be recirculated through the closed loop while the image(s) are captured.

61. (New) The method according to claim 56, wherein a known volume of the suspension is in the field of view of the image capturing device and thus captured in the or each image.

62. (New) The method according to claim 1, wherein the method also includes the step of weighing the sample of fibres selected for testing.

63. (New) The method according to claim 1, wherein the fibre fineness of the fibres is estimated when the standard error of the mean value of measured fibre length per image determined in step b) is equal to or less than a preselected value.

64. (New) The method according to claim 63, wherein the standard error be continuously recalculated after the capture of each image or a group of images to provide a running value of the standard error which may then be continuously compared to the preselected value while the method is carried out.

65. (New) The method according to claim 64, whereby when the fibres being tested are of a known uniform length, step b) involves counting the number of fibres in the image(s) using the automated computer image analysis.

66. (New) The method according to claim 56, wherein an estimate of the fibre fineness is calculated using the formula:

$$F = \frac{mv}{VL}$$

wherein F represents the average fibre fineness of the fibres in the images;

m represents the total mass of the fibres selected for testing;

V represents the total volume of the fluid suspension;

v represents the volume of the suspension captured in each image; and

L represents the mean length of fibre in the images

captured.

67. (New) The method according to claim 56, wherein the fibre concentration appearing in the image(s) ranges up to 10.0 millimetres of fibre per square millimetre of image (mm/mm^2).

68. (New) The method according to claim 67, wherein the fibre concentration in the image(s) ranges up to 2.0 mm/mm^2.

69. (New) The method according claim 56, wherein the image capturing device includes a chamber through which the suspension is conveyed, the chamber having a transparent wall and the field of view of the image capturing device is directed at the transparent wall for capturing images of the fibres in the chamber.

70. (New) The method according to claim 69, wherein the cross-sectional area of the chamber transverse to the direction of flow of the suspension through the chamber vary such that the concentration of fibres captured in the image(s) can be adjusted by moving the position of the field of view of the image capturing device along the chamber.

71. (New) The method according to claim 70, wherein the image capturing device is automatically adjusted along the chamber depending on the fibre concentration appearing in the images.

72. (New) The method according to claim 56, wherein the fibre concentration in the image(s) is adjusted by changing the total volume of the fluid in which the fibres are suspended or the mass of fibres suspended in the fluid.

73. (New) The method according to claim 56, wherein when the fluid of the suspension is a liquid, the method further includes

adding a wetting agent to the liquid to improve the degree by which the fibres are uniformly distributed in the suspension.

74. (New) The method according to claim 73, wherein the wetting agent is a surfactant or an alcohol.

75. (New) The method according to claim 73, wherein the surfactant is a commercial cleaning detergent.

76. (New) The method according to claim 73, wherein the surfactant is a non-ionic surfactant.

77. (New) The method according to claim 1, whereby when the fibres being tested are cotton or other cellulosic fibres, the method also includes estimating the average maturity value using the estimated fibre fineness from step c) and a micronaire value for the sample of fibres.

78. (New) The method according to claim 76, whereby the average maturity value is calculated by the following equation:

$$F*M = 3.86*Mic^2 + 18.16*Mic + 13$$

wherein F is fibre fineness estimated in step c), M is maturity and Mic is micronaire.

79. (New) An apparatus for estimating the fibre fineness of a known mass of fibres, the apparatus including:

an image capturing device for capturing either i) all of the fibres selected for testing or ii) a fraction thereof, in one or more images;

a computer capable of automatically determining the total length of fibre or fibres in the or each image; and a means for estimating the fibre fineness of the fibres using the total fibre length in the image(s).

80. (New) The apparatus according to claim 79, wherein the means for estimating the fibre fineness is a computer that can i) estimate the mass of fibre in the image(s) captured and ii) divide the mass estimate by the length of fibre in the image(s).

81. (New) The apparatus according to claim 80, wherein when the image capturing device captures image(s) of the fibres suspended in a substantially uniform fluid suspension, the computer estimates the mass of fibre in the image(s) based on the volume of fluid in the field of view of the image capturing device compared to the total volume of the fluid in which the fibres are suspended.

82. (New) The apparatus according to claim 81, wherein the computer is programmed to estimate the fibre fineness using the formula:

$$F = \frac{mv}{VL}$$

wherein	F	represents the average fibre fineness of the fibres in the images;
	m	represents the total mass of the fibres selected for testing;
	V	represents the total volume of the fluid suspension;
	v	represents the volume of the suspension captured by each image; and
	L	represents the mean length of fibre in the images captured.

83. (New) The apparatus according to claim 79, wherein the image capturing device is directly linked to the computer for determining the fibre length in the image(s).

84. (New) The apparatus according to claim 79, wherein the apparatus includes a fluid passageway that extends through a field of view of the image capturing device such that when the fibres are suspended in a fluid, images of the fibres can be captured as the fluid is conveyed through the passageway.

85. (New) The apparatus according to claim 84, wherein the passageway is in the form of a closed loop for recirculating the fibres through the field of view of the image capturing device.

86. (New) The apparatus according to claim 85, wherein the apparatus includes a control means for controlling the total volume of the suspension in the fluid passageway.

87. (New) The apparatus according to claim 86, wherein the control means is provided by the fluid passageway being flow connected to a head vessel, whereby maintaining the fluid level in the head vessel ensures that the fluid passageway contains a constant known volume of the suspension.

88. (New) The apparatus according to claim 87, wherein the fluid passageway includes a chamber that extends through the field of view of the image capturing device including a transparent wall so that the image capturing device can capture images of the fibres passing through the chamber, and the chamber is configured such that the volume of the suspension in the field of view of the image capturing device is known.

89. (New) The apparatus according to claim 87, wherein the cross-section of the chamber in a direction transverse to the direction of flow through the chamber is graduated such that the volume of fluid in the field of view of the image capturing device varies along the chamber.

90. (New) The apparatus according to claim 89, wherein the depth of the chamber in a direction transverse to the direction

of flow through the chamber tapers continuously between the inlet and outlet of the chamber.

91. (New) The apparatus according to claim 89, wherein the cross-sectional area of the chamber transverse to the direction of flow through the chamber can be varied by actual movement of one wall of the chamber relative to another wall.

92. (New) The apparatus according to claim 89, wherein the position of the field of view of the image capturing device is moveable along the chamber so that the volume of suspension in the field of view can be varied.

93. (New) The apparatus according to claim 92, wherein the apparatus includes a drive assembly for adjusting the position of the image capturing device relative to the chamber.

94. (New) The apparatus according to claim 93, wherein a computer for operating the drive assembly is programmed so that it can determine the volume of suspension passing the field of view of the image capturing device.

95. (New) The apparatus according to claim 93, wherein the computer for operating the drive assembly automatically operates the drive assembly and thereby adjusts the position of the image capturing device when the fibre concentration in the image fall outside a selected range.

96. (New) The apparatus according to claim 95, wherein the selected range is from 0 to 10 mm of the fibre per square mm of image.

97. (New) The apparatus according to claim 79, wherein the image capturing device includes a recording device that can record images in a digital format.

98. (New) The apparatus according to claim 93, wherein the image capturing device also includes an illuminating means to assist in the capture of images of the fibres.

99. (New) The apparatus according to claim 98, wherein the illuminating means includes a light source positioned on the opposite side of the chamber to the recording device such that light transmitted through the fibres can be detected by the recording device.

100. (New) The apparatus according to claim 99, wherein the illuminating means includes a light source on the same side of the chamber as the recording device such that light reflected from the fibres can be detected by the recording device.

101. (New) The apparatus according to claim 98, wherein the illuminating means is moveable relative to the chamber such that when the image capturing means is moved relative to the chamber, the illuminating means is able to remain in a relatively fixed position compared to the image capturing device.

102. (New) The apparatus according to claim 93, wherein the illuminating means is moveable by the drive assembly for moving the image capturing device.